

Accelerator Systems Division Highlights Ending October 7, 2005

Installation

Craft Snapshot 10/2/05

ASD productive craft workers	42.0
Foremen (Pd by 15% OH)	6.0
HSM management (Pd directly)	3.0
TOTAL AMSI WORKERS	52.0
Less WBS 1.9, 1.2 etc	4.0
Less absent	2.0
TOTAL PD BY ASD/ORNL DB WPs	36.0

Accelerator Physics

Operations

Ion Source

- The ion source on the Front-End provided 15 mA of H⁻ current for testing the chopper. No cesiation was required to deliver the desired current.
- With the new ionizer, the external antenna source has been operated with full pulse length up to ~20 Hz. The uncesiated source produced ~13 mA, and the beam current dropped by ~30% over the 1 ms pulse. Cesiatiion methods are in the work to duplicate this result with a cesiated source.

Survey and Alignment

Mechanical

Ring work:

- The HEBT drift pipe DP23 was installed through the shield wall.
- The HEBT momentum scraper assemblies (2) modifications were completed at the vendor and the units received at the SNS.
- The Ring Injection straight section beamline vacuum misc components' installation continued.
- The Ring Collimator straight section beamline vacuum misc components' installation continued.
- The Ring Collimator #2 top shielding was received.
- The Ring Collimator #3 top shielding order was placed with the vendor.
- The Ring Extraction straight section Lambertson magnet was aligned and close proximity components modified.
- The Ring arc D alignment was completed and also started on the last remaining arc A.
- The RTBT/Target quad magnets' tunnel utility installation continued.
- The RTBT/Target quad magnets' buss bar brazing samples were fabricated and inspected.
- The RTBT Collimator #1 shielding assembly was received.
- The RTBT Collimator #2 shielding assembly order was placed with the vendor.
- An order was placed for the spare Injection Dump Thick Film Stripper Assembly

Water Systems Installation

- The Ring magnet cooling system was refilled and returned to service.
- The prototype Ring half-cell cooling manifold was installed and the magnet flow rates verified.
- Installation of the PFN oil lines continued in the Ring Service Building.
- Installation of water connections to RTBT extraction dump magnets continued.
- Test and checkout of the RTBT service building PS cooling system was started.

Electrical

- All 6 quadrupole power supplies for the RTBT beam line from the Ring to the RTBT ground break have been operated and commissioned along with their associated magnets. This includes integration with the EPICS control system and calibrations. All 6 main ring quadrupole power supplies have been operated and commissioned along with their associated magnets. This includes integration with the EPICS control system and calibrations. This completes testing of 27 of 54 power supplies needed for the Ring ARR. The main ring dipole power supply has been operated and commissioned along with its associated magnets. This includes integration with the EPICS control system and calibrations. However, there is present 120 Hz ripple at 4 times specification. The vendor is fabricating a filter circuit – this power supply will be retested after this circuit is installed. Ring corrector power supply testing has started – 20 of 146 total correctors have been operated and commissioned along with their associated magnets. This includes integration with the EPICS control system. Next week, the extraction septum (Lambertson) magnet power supply will be tested.

- All BPM and BCM cables from the Ring Service Building have been installed and terminated. All BLM cables from the Ring Service Building have been installed and are now being terminated.
- All vacuum cables from the Ring Service Building have been installed and are now being terminated. Terminations are ongoing in the PFN room and for the injection septum magnets.

RF

LLRF

- Prepare for the Workshop on Low-Level RF Controls (LLRF05), to be held next week at CERN.
- Begin procurement of electrical components for the production of spare HPMs and FCMs.
- Work on upgrade of arc detection fiber optic cables in normal conducting Linac.

Linac HPRF

- Complete klystron replacement for SCL 11b.
- Prepare spare E2V 402.5 MHz klystron for testing in RFTF

Ring RF

- Completed full current slew rate test on the Dynamic Tuning Supply for Station RF21. Measured lead inductance is 25.5 microhenrys and the voltage swing requirement over the intended tuning range is well within the power supply ratings.
- Continuing work on the remaining RF Stations.
- Low Level RF is progressing well

Cryo Systems

- Warm sections 22 and 23 were removed and Cryomodule 23 was installed in the tunnel. Coupler installation and instrumentation check out is underway.

Beam Diagnostics

BPM

Wire Scanners:

BLMs:

Foil Video systems:

- reviewed geometry of the secondary foil system and arrange an in-tunnel test to evaluate potential field of view issue.
- received both cameras and IEEE-1394 interface boards for the Target viewscreen system
- held an imaging systems meeting and settled several current issues regarding the foil video and target systems.
- received the foil video reference target that the Mechanical group manufactured. It will be tested next week

BCM:

- Added code to support new digitizer to BCM Ring system
- Finalized fiber routing and installation for BCM charge value to XFD instrument group.

Controls

- All three Ring vacuum control PLCs are now up and running on the network. The Control Net (inter-PLC proprietary network) is configured and running as well. The vacuum controllers are being installed in the racks and installation of controllers is now ~50% complete. The Ring vacuum control IOC should be on-line today or Monday.
- Ring and RTBT vacuum control test procedures were written. The HEBT vacuum control test procedure was modified to include devices that were not tested for linac commissioning. All of these procedures are now waiting final approval.
- The Controls Group is supporting system checkout on many fronts, including for the Ring Injection Dump, Ring global controls, Ring power supplies, Ring RF, Target controls, etc.
- Timing system signal distribution in the Front End Building was reconfigured in preparation for moving the timing system "master" IOC to the Ring Service Building next week.